Space Weather Forecast

Issued on Monday, 13 June 2022 at 01:03 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight chance of moderate-class X-ray flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Low in the last 24 hours, with only a couple of Common class flares, primarily from the region in the northeast disc. An old unnumbered region has been incorporated to it, for consistency with our US counterparts. This region, now Fai/Beta-gamma, is by far the largest and the most complex one, though it remains largely inactive despite its size. The other regions are relatively small and largely inactive. No Earth-directed CMEs (coronal mass ejections) have been observed.

Solar Wind / Geomagnetic Activity: The solar wind speed rose from background levels to be slightly elevated at around 450 km/s, likely due to the influence of the fast wind originating from a small and weak coronal hole. The interplanetary magnetic field strength was weak but with brief moderate peaks, strongest during the morning of the 12th, along with the faster solar wind speeds. The north-south component has mainly varied weakly, but had some moderately strong peaks along with a period of negative (southward) pointed field with the faster winds. The overall effect of the above solar wind measures on geomagnetic activity was Quiet initially but largely Unsettled during the second half of the period.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms detected.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be mainly Low through this period, with C-class flares likely and a slight chance of M-class flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Slightly elevated to elevated winds are expected to vary erratically through Day 1 (13th) from weak coronal hole fast wind influences, before declining on Day 2 (14th). They are expected to rise more significantly on Day 3 and 4 (15th and 16th) to elevated levels, under the influence of the fast wind from CH91 and CH90. Geomagnetic activity is expected to be mainly Quiet with isolated Unsettled intervals, but Quiet to Unsettled with a chance of Active intervals on Day 4 (16th).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	25	30	30
Very Active	R3 to R5 X	No	2	2	2	2

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	2	2
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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